

I claim:

1. A non-inertial release restraint buckle assembly for a vehicle having a restraining belt, the buckle assembly comprising; a buckle including a frame and a housing at least partially covering said frame, said housing having a front and rear ends and opposite sides, a latch plate receiving channel defined within said housing, an opening in said front end of said housing communicating with said latch plate receiving channel and of a size to receive a latch plate therein, a latch plate having a pair of spaced locking tongs including hooked end portions, a pair of latching mechanisms slidable mounted within said housing so as to be reciprocally movable in a guide channel defined within said housing and which extends transversely to a central longitudinal axis of said housing which extends from said front to said rear ends, biasing means disposed between said pair of latching mechanisms for urging said latching mechanisms in opposite directions toward a first outer locking position wherein said latching mechanisms are engageable with said locking tongs of said latch plate when said latch plate is inserted in said housing, release means engageable with said latching mechanisms for moving said latching mechanisms simultaneously

inwardly towards said central axis of said housing to a second release position wherein said latching mechanisms are disengaged from said locking tongs of said latch plate so that said latch plate may be removed from said buckle housing, and said biasing means constantly urging said latching mechanisms toward said first locking position with oppositely directed forces such that when one of said latching mechanisms is urged toward said second release position by a force, a simultaneous increase in force is applied to retain the other latching mechanism in said first locking position thereof such that said latching mechanisms are only releaseable upon simultaneous application of forces to move said latching mechanisms from said first locking position to said second release position.

2. The non-inertial release restraint buckle assembly of claim 1 including a pair of spaced openings in said housing, a push button secured to each of said latching mechanisms and extending upwardly through opposite ones of said openings in said housing such that said push buttons are in spaced relationship with respect to one another whereby said push buttons may be urged toward one another to simultaneously urge said latching mechanisms to said second release positions.

3. The non-inertial release restraint buckle assembly of claim 2 wherein said housing extends generally slightly above said push buttons in an area of said spaced openings therein.

4. The non-inertial release restraint buckle assembly of claim 2 wherein each of said latching mechanisms includes a slide block including an outer tapered face which is engageable by one of said locking tongs when said latching mechanism is in said first locking position, said tapered face terminating at a lock dog for engaging said hooked end portion of one of said locking tongs of said latch plate.

5. The non-inertial release restraint buckle assembly of claim 4 including a pair of spaced guide blocks mounted in said housing and defining said guide channel therebetween, and each of said slide blocks including means for engaging said guide blocks to prevent said slide blocks from being disengaged from within said guide channel.

6. The non-inertial release restraint buckle assembly of claim 5 wherein said buckle frame includes a pair of opposing sidewalls defining opposing channels for receiving said locking tongs therein when said latch plate is inserted within said opening in said housing.

7. The non-inertial release restraint buckle assembly of claim 1 in which said release means for simultaneously moving said latching mechanisms to said second release position includes a slide release member including a pair of spaced projections extending into said housing so as to be selectively engageable with said latching mechanisms, and said slide release member including a push button portion selectively manually engageable to urge said slide release member from a first position to a second position in which said spaced projections urge said latching mechanisms simultaneously to said second release position.

8. The non-inertial release restraint buckle assembly of claim 7 in which said housing includes a domed portion for selectively receiving said push button when said push button is urged to move said slide release member to said second position.

9. The non-inertial release restraint buckle assembly of claim 7 wherein said latch plate includes an intermediate tang disposed between said locking tongs, said tang being moveable intermediate said latching mechanisms to prevent said latching mechanisms from moving to said second release positions if an

inertial force is applied to said slide release member and said latching plate to drive them inwardly of said housing.

10. The non-inertial release restraint buckle assembly of claim 7 in which said buckle frame includes a pair of opposing side walls defining guide channels for said slide release member, and means for retaining said slide release member in sliding relationship within said opposing guide channels.

11. The non-inertial release restraint buckle assembly of claim 10 wherein each of said latching mechanisms includes a slide block including an outer tapered face which is engageable by one of said locking tongs when said latching mechanism is in said first locking position, said tapered face terminating at a lock dog for engaging said hooked end portion of one of said locking tongs of said latch plate.

12. The non-inertial release restraint buckle assembly of claim 11 including a pair of spaced guide members mounted in said housing and defining said guide channel therebetween, and each of said slide blocks including means for engaging said guide members to prevent said slide blocks from being disengaged from within said guide channel.

13. The non-inertial release restraint buckle assembly of claim 12 including a first resilient means mounted between one of said one guide members and said slide release member for normally urging said slide release member to its first position.

14. The non-inertial release restraint buckle assembly of claim 13 including second resilient means for urging said latch plate from said buckle housing when said latching mechanisms are moved to said second release position.

15. The non-inertial release restraint buckle assembly of claim 12 wherein said latch plate includes an intermediate tang disposed between said locking tongs, one of said guide members having a slot defined therein for selectively receiving said tang when said latch plate is inserted within said housing, said channel in said one of said guide members being positioned such that said tang is moveable intermediate said latching mechanisms to prevent said latching mechanisms from moving to said second release positions if an inertial force is applied to said slide release member and said latch plate to drive them inwardly of said housing.

16. The non-inertial release restraint buckle assembly of claim 7 including an inertia lock slidably mounted in said housing independently of said latch plate, said inertial lock being moveable intermediate said latching mechanisms to prevent said latching mechanisms from moving to said second release positions if an inertial force is applied to said slide release member to drive said slide release member inwardly of said housing.

17. The non-inertial release restraint buckle assembly of claim 16 including means for resiliently biasing said inertia lock away from said latching mechanisms.

18. The non-inertial release restraint buckle assembly of claim 12 including an inertia lock slidably mounted in said housing independently of said latch plate, said inertial lock being moveable intermediate said latching mechanisms to prevent said latching mechanisms from moving to said second release positions if an inertial force is applied to said slide release member to drive said slide release member inwardly of said housing.

19. The non-inertial release restraint buckle assembly of claim 18 wherein said inertial lock includes a body from which

extends a tang which extends within a slot defined in one of said guide members, said tang being urged through said slot and intermediate said latching mechanisms when the inertial force is applied to said slide release member to drive said slide release member inwardly of said housing, and resilient means for urging said body away from said one of said guide member.

20. The non-inertial release restraint buckle assembly of claim 19 including means for guiding said tang with said slot.

21. A method of providing a non-inertial safety restraint system for vehicles which system includes a latch plate having a pair of spaced locking tongs, a buckle including housing having an interior channel for selectively receiving the latch plate and a pair of oppositely oriented latching mechanisms movable within the housing from a first locking position engaging the locking tongs of the latch plate to retain the latch plate within the housing to a second position to permit insertion and removal of the latch plate relative to the interior channel of the housing, and wherein at least one release push button is provided for simultaneously moving the latching mechanisms to the second release position, the method including;



a) continuously urging the pair of latching mechanisms to the first locking position thereof by generally equal and opposite resilient force,

b) moving the pair of latching mechanisms from the first locking position thereof to the second release position thereof as the latch plate is being inserted within the housing and such that when the latch plate is fully inserted within the housing the pair of latching mechanisms are moved to the first locking position thereof to prevent withdrawal of the latch plate from the buckle housing, and

c) releasing the latch plate from the pair of latching mechanisms only upon the simultaneous application of force to each of the latching mechanisms to move them toward one another within the housing to thereby move them to the second release position thereof.

22. The method of claim 21 wherein the step of releasing includes manually urging two oppositely oriented push buttons which are connected to the pair of latching mechanisms toward one another to thereby move the pair of latching mechanisms to the second release position.

23. The method of claim 21 wherein the step of continuously urging includes providing resilient means between

each of the pair of oppositely oriented latching mechanisms such that any force applied toward one of the pair of latch mechanisms to move the one of the pair of latching mechanisms to the second release position applies an equal force simultaneously to the other of the pair of latching mechanisms to urge the other of the latching mechanisms to remain in the first locking position to prevent the latch plate from being released by inertial forces applied to the buckle.

24. The method of claim 21 including the additional step of preventing said pair of latching mechanisms from moving toward one another whenever an inertial force is applied relative to said housing which would tend to drive said latch plate into said housing.